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NPL Site Narrative for Nuclear Metals, Inc.

NUCLEAR METALS, INC.
Concord, Massachusetts

Federal Register Notice: June 14, 2001

Conditions at Proposal (July 27, 2000): The Nuclear Metals, Inc. (NMI) facility is located on a 46.4-acre parcel located at 2229 Main Street in Concord, Middlesex County, Massachusetts. The facility includes five interconnected buildings, a paved parking area, a sphagnum bog, a cooling water recharge pond, and a holding basin. The NMI facility currently operates as Starmet Corporation. The topography of the property slopes down to the north. The property is bordered to the north by Main Street, commercial and residential properties, and the Assabet River; to the east by woodland and residential properties; to the west by woodland and commercial/industrial properties; and to the south by woodland and residential properties.

In 1958, NMI began operating a manufacturing facility on previously undeveloped land. Nuclear Metals, Inc. produced depleted uranium products, primarily as penetrators for armor piercing ammunition. They also manufactured metal powders for medical applications, photocopiers, and speciality metal products, such as beryllium tubing used in the aerospace industry. From 1958 to 1985, NMI discharged wastes to an unlined holding basin. Cast depleted uranium ingots or billets were jacketed, sealed, and evacuated in copper cans, which were then heated and extruded into long rod stock. The extruded depleted uranium rod had a resulting thin layer of copper coating, which was removed in a nitric acid pickling operation. During the pickling process, "small quantities" of copper and uranium were dissolved in the nitric acid. The spent nitric acid solution was collected, neutralized with a lime slurry, and then discharged to the unlined, in-ground holding basin. Small quantities of other speciality metal products including steel jacketed beryllium, stainless steel, and titanium alloys were also pickled at various times with several different acids (nitric, hydrofluoric, and sulfuric), and discharged to the holding basin. The discharge to the holding basin ceased in 1985 when NMI began using an acid closed loop recycling process.

In addition to natural and depleted uranium (as elemental, oxide, and fluoride), NMI handled thorium and thorium oxide under license to the Nuclear Regulatory Commission (NRC); sulfuric and nitric acids for process activities; 1,1,1-trichloroethane as a solvent; trichlorofluoroethane as a degreaser; zirconium; magnesium; beryllium; acetone; hydrogen peroxide; flammable gases (propane and acetylene); and oxygen. Two 10,000-gallon underground storage tanks were used for the storage of No. 4 fuel oil. Several of the following oils were used and recycled on site: DTE light, DTE heavy, Medium DTE 25, vacuum oil (HE1SO), and No. 7d.

On October 1, 1997, NMI was renamed Starmet Corporation. In March 1997, the company's license to handle source material (including depleted uranium, thorium, and thorium oxide) under the NRC was transferred to the Massachusetts

Department of Public Health. In accordance with Massachusetts state license SM-0179, Starmet is allowed to use source material (including depleted uranium, thorium, and thorium oxide) to manufacture, research, develop, and distribute metallic products in a variety of forms including castings, extrusions, and metal powders. Starmet continues to conduct a variety of metallurgical tasks, including extrusions, beryllium aluminum alloy investment coatings, and depleted uranium processing. According to Starmet, one-third of Starmet's core business is producing speciality metal powder using a rotating electrode process.

The Massachusetts Department of Environmental Quality Engineering (MADEQE) collected ground water samples and detected volatile organic chemicals (VOCs) in NMI's supply well, previously used for drinking water. Analytical results indicate that the ground water beneath the property is contaminated by VOCs, metals, and radionuclides (i.e. uranium and thorium). In addition, a sphagnum bog on the property has also been sampled and shown evidence of VOCs, metals, and radionuclides.

Status (June 2001): EPA is considering various alternatives for this site.

[The description of the site (release) is based on information available at the time the site was evaulated with the HRS. The description may change as additional information is gathered on the sources and extent of contamination. See 56 FR 5600, February 11, 1991, or subsequent FR notices.]

For more information about the hazardous substances identified in this narrative summary, including general information regarding the effects of exposure to these substances on human health, please see the Agency for Toxic Substances and Disease Registry (ATSDR) ToxFAQs. ATSDR ToxFAQs can be found on the Internet at http://www.atsdr.cdc.gov/toxfaq.html or by telephone at 1-888-42-ATSDR or 1-888-422-8737.
